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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,917	04/01/2004	Raymond H. Bryden	1035-R4199-CONT	9435

34456 7590 09/30/2004

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AUSTIN, TX 78746

EXAMINER

STEIN, STEPHEN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,917

Applicant(s)

BRYDEN, RAYMOND H.

Examiner

Stephen J Stein

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-66 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 38-66 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/1/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. It is noted that the citation VV on applicants' PTO-1449 submitted April 1, 2004 is incorrectly identified as JP 02715782. This reference does not exist. It is apparent that applicants meant to cite JP 07215782 which was cited in the parent application. A line has been drawn through the citation on the PTO-1449 and the correct reference has been cited by the examiner on a PTO-892.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 38-49 and 52-64 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 07215782A (Kako et al.).

Kako teaches a method of coating a silicon carbide heating element with a coating (decal) comprising zircon (ZrSiO_4 or unstabilized $\text{ZrO}_2 \cdot \text{SiO}_2$) having a thickness of 100-2,000 μm followed by baking at 1,100-1,350°C (See abstract). With regard to the claimed properties of edge definition, contrast, and adhesion, it is expected that the disclosed article

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would exhibit these properties, since the prior art is teaching the same structure and method of manufacture as claimed and disclosed by applicants.

4. Claims 38-49 and 51-64 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,517,960 (Wang).

Wang teaches a an article comprising a ceramic substrate of silicon nitride or silicon carbide and a zircon (ZrSiO_4 or unstabilized $\text{ZrO}_2 \cdot \text{SiO}_2$) coating (decal) on the substrate (See abstract and col. 2, lines 42-66). Wang further teaches that a post annealing process at temperatures of 1100 to 1350 °C is used after spraying of the coating (col. 3, lines 13-16). The reference still further teaches that the thickness of the zircon coating is between 25-250 microns (col. 3, lines 35-38). With regard to the claimed properties of edge definition, contrast, and adhesion, it is expected that the disclosed article would exhibit these properties, since the prior art is teaching the same structure and method of manufacture as claimed and disclosed by applicants.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 51, 52, 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kako et al.

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As stated above, Kako teaches a method of coating silicon carbide heating element with a coating (decal) comprising of zircon (ZrSiO_4 or unstabilized $\text{ZrO}_2 \cdot \text{SiO}_2$) having a thickness of 100-2,000 μm followed is baking at 1,100-1,350°C.

Although Kako is silent on the weight ratio of unstabilized zirconia to silica, absent a showing of criticality with respect to the compositional ratio of the zirconia to the the silica, it would have been obvious to a person of ordinary skill in the art to optimize the zirconia:silica weight ratio (a result effective variable) through routine experimentation. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 51, 52, 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang.

As stated above Wang teaches a ceramic substrate with coating of unstabilized zirconia and silica which is heat treated at 1100 to 1350 °C.

Although Wang is silent on the weight ratio of unstabilized zirconia to silica, absent a showing of criticality with respect to the compositional ratio of the zirconia to the the silica, it would have been obvious to a person of ordinary skill in the art to optimize the zirconia:silica weight ratio (a result effective variable) through routine experimentation. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

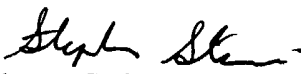
Jeffrey R. Price and Mark Van Roode, *Corrosion Resistant Coatings for Silicon Carbide*, SOLAR TURBINES INCORPORATED, San Diego, CA (pgs. 469-493)

The Development of Protective Coatings for Ceramic Tubular Components, TOPICAL REPORT (March 1986 - December 1987) GRI-88-0005, Gas Research Institute, 8600 West Bloor Avenue, Chicago, IL 60631, Reproduced by U.S. Department of Commerce, National Technical Information Services, Springfield, VA 22161

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 571-272-1535. The official fax number is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 19, 2004


Stephen J. Stein
Primary Examiner
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